What is claimed is:

1. A method of producing a plastic optical fiber, comprising steps of:

constructing a preform in which first-N^{th} tubes formed from plastic are coaxially disposed, said first tube being positioned innermost, said N^{th} tube being positioned outermost;

heating said preform; and

during the heating, performing a melt-drawing of said preform so as to obtain said plastic optical fiber.

2. A method claimed in claim 1, wherein said plastic optical fiber is constructed of a core and a clad, said core is formed from said first-$(N-1)^{th}$ tubes, and said clad is formed from said N^{th} tube.

3. A method claimed in claim 2, wherein said refractive indexes become lower gradually in the order from said first tube to said N^{th} tube.

4. A method claimed in claim 3, wherein a rod made from plastic is disposed inside said first tube, and has a higher refractive index than said refractive indexes of said first-N^{th} tubes.

5. A method claimed in claim 4, wherein said refractive index of said first-N^{th} tubes decreases from center in a manner of nearly squared distribution.

6. A method claimed in claim 3, wherein a refractive index of said clad is at least 3% lower than a refractive index of

outermost part of said core.

7. A method claimed in claim 6, wherein said first-$(N-1)^{th}$ tubes have a same thickness, and said N^{th} tube has a largest thickness.

8. A method claimed in claim 3, further comprising decompressing in gaps formed between neighboring ones of said first-N^{th} tubes in said melt-drawing.

9. A method claimed in claim 8, wherein the decompressing is controlled for making more in inner gaps.

10. A method claimed in claim 9, wherein said preform is rotated in the step of said melt-drawing.

11. A method claimed in claim 3, wherein said plastic material contains polymers to which at least one of (meth)acrylic acid and esters thereof as monomer is polymerized.

12. A method claimed in claim 12, wherein glass-transition temperatures of said tubes become larger gradually from said first tube to said N^{th} tube.

13. A method claimed in claim 12, wherein an averaged surface roughness (SRa) per unit area of each of said tubes is at most 1 μm.

14. An apparatus for producing a plastic optical fiber from a preform in which plural tubes are coaxially disposed, comprising:

a sucking device for sucking gas in gaps formed between said neighboring tubes;

a heating device for heating and gas said preform;

a melt-drawing device for melt-drawing said melted preform.

15. An apparatus claimed in claim 14, wherein said heating device is a furnace in which said preform is disposed so as to extend vertically, and said sucking device sucks said gas from an upper side of said preform in said furnace.

16. An apparatus claimed in claim 15, wherein said sucking device further sucks said gas from a lower side of said preform in said furnace.

17. An apparatus claimed in claim 15, further comprising a rotating device for rotating said preform.

18. An apparatus claimed in claim 17, wherein refractive index is the largest in an innermost tubes among said plural tubes, and becomes lower toward an outside.

19. An apparatus claimed in claim 18, wherein said preform further has a pillar rod which is disposed inside said innermost tube and has large refractive index.